

Notice of Allowability

Application No.

09/992,137

Examiner

Akash Saxena

Applicant(s)

HILTON, RONALD

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/11/06.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

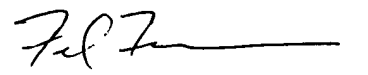
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 1/11/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


PRIMARY EXAMINER

DETAILED ACTION

1. Amended independent claims 1, 11 & 12 and dependent claims 2-10, and 13-21 are currently pending in this application based on applicant's amendment filed 11th January 2006.

Claim Interpretation

2. Claim 12: A system is disclosed in the claim and is understood in light of the current disclosure as hardware system as presented in the Fig.1-2, having an operating system.

Response to Applicant's Remarks & Examiner's Withdrawals

3. Examiner respectfully withdraws the claim objection(s) to Figure 1-2 and in view of the amendments to the Fig.2 and corresponding amendment to Specification for Fig.1.
4. Examiner respectfully withdraws the claim objection(s) to abstract in view of the amendment to the abstract and the new abstract is entered.
5. Examiner respectfully withdraws the claim rejection(s) under 35 USC § 101 to claim(s) 1-10 in view of the amendment.
6. Examiner respectfully withdraws the claim rejection(s) under 35 USC § 102 to claim(s) 1-3, 6-7, 11-4, 17-18 in view of the applicant's arguments & amendments.
7. Examiner respectfully withdraws the claim rejection(s) under 35 USC § 103 to claim(s) 4-5, 8-10, 15-16 and 19-21 in view of the amendment and/or applicant's arguments.

Response to Applicant's Remarks for 35 U.S.C. § 102 & 103

8. Applicant has argued that (4.2.3)

Mann'295, as quoted in Section 4.2.2, sets a tag for self-modifying code that cannot be translated and executed as translated code. Mann'295 aborts both translation and translated code execution and returns execution to the emulator for interpretation execution of the target (legacy) instruction. By way of contrast, the present invention sets a flag to indicate when an operand-setting instruction has not set a precedent operand needed by an operand-using instruction. Rather than aborting translation or translated instruction execution, the present invention suspends the operand-using instruction, executes the translated instructions for setting the precedent operand and then resumes translated execution of the operand-using instruction.

Examiner respectfully disagrees with the applicant reading of the Mann'295 reference that "self-modifying code that cannot be translated and executed as translated code". Mann'295 recites that the check is made if the code is translated earlier and based on the at set flag, thereby not limiting translation if the code is self-modifying.

First, the Target data is stored in Target system memory, step 132. In the preferred embodiment, the store is limited to the number of significant Target system bits. Thus, when emulating the GCOS 8 architecture, 36-bits of data are stored in the Target system memory. A test is then made whether the store was into Target code, step 134. In the preferred embodiment, this test is accomplished by testing the Target code tag 72 associated with the Target word into which the store is being made. A code tag 72 not equal to zero indicates a store into Target code. This in turn indicates self-modifying code. A test is then made whether Host code 88 has already been generated for this Target instruction 76, step 136. If Host code 88 has already been generated for this Target instruction 76, step 136, then the Target instruction is marked with a code tag 72 equal to "X" or "Don't Translate", step 142. This is to suppress subsequent Dynamic Object Code Translation (DOCT) for this Target instruction 76 since that instruction is self-modified code. Then, the block of Host code 88 is either entirely disabled, or is split, step 144. In all cases, the Store functionality then completes, step 148.

Although the examiner disagrees with the applicant, as indicated by applicant, Mann'295 does not teach the present invention sets a flag to indicate when an operand-setting instruction has not set a precedent operand needed by an operand-using instruction.

Mann'295 teaches setting flag in a data processing system implementing
Dynamic Object Code Translation (DOCT) for emulating Target system instructions

Art Unit: 2128

on a Host system, each Target system instruction has an associated index/offset field and an associated code tag that identifies whether the Target instruction has been translated into Host code, and if already translated, whether it is an entry point, middle, or last instruction in a block of code (Abstract).

Applicant has also argues limitation (4.2.4), predictable or non-predictable operand byte lengths not present in claim 1, 11 or 12. Hence they are mute.

Applicant argues (4.2.5) advantages of current invention over Mann'295, which are mute at present.

Applicant's argues (4.2.6) positive recitation by current invention as compared to negative recitation for setting the flag. Although the positive/negative recitation arguments are unpersuasive, the motive for setting the flag as presented by Mann'295 is different from instant invention, therefore the second half of the argument is persuasive and may be considered part of reasons for allowance.

Examiner agrees with applicant for arguments presented in 4.2.7-4.2.9 in remarks. Further, applicant's arguments 4.3-4.6 are mute in view if allowance of claim 1,11 & 12.

Regarding applicant's argument presented in remarks (5.2), (i)-(iii) although Scalzi'013 teaches variable length operands (instructions) (Scalzi'013: Col.25 Lines 31-39), examiner agrees neither Mann'295 nor Scalzi'013 teach different byte alignment explicitly. It is taken from applicant argument and absence of such teaching in the either art that this feature is not inherent. Further, arguments

Art Unit: 2128

pertaining to claims 4-5, 8-10, 15-16 and 19-21 are mute as they are dependent claims under allowable claims 1, 11 and 12.

Allowable Subject Matter

9. Claims 1-21 and specifically independent claims 1, 11 and 12 have now been allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

The unique feature of this applicant's disclosure is setting the flag in when the value of the precedent operand is not set by the operand-setting instruction and when the operand-using instruction is executed checking the flag status, suspending the operation of operand-using instruction, executing the operand-setting instruction (& clearing the flag) and resuming execution of operand-using instruction, whereby the flag is exclusively used for operand determination and NOT instruction translation as presented in prior art (Mann'295).

While these features are individually disclosed in the prior art, the prior art of record does not meet the conditions as suggested in MPEP section 2132, namely:

"The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an **ipsissimis verbis** test, i.e., identity of terminology is not required. **In re Bond**, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)."

Other closest prior art, besides Mann already discussed above, uncovered during examination teaches certain limitations of the claimed invention as follows:

U.S. Patents 6163764: (Dulong et al): Dulong teaches (Col.4 Lines 6-19) - The tag set provides a means to detect if there is a format mismatch between the operation

and the operands. A detection logic circuit can be implemented to compare the operation type with the corresponding tag bits. When there is a format mismatch, a trap can be invoked to direct control to a micro-routine to change the format of the operands.

Examiner has performed an updated search and attached new patents (PTO-892) found during the search that teach similar methodology but do not perform the exact process during legacy code translation as disclosed by instant application.

Claims 1, 11, and 12 are now allowable based on amendment, the prior art search and the reasons presented above.

Dependent claims 2-10, and 13-21 are also allowable based on their dependency on claims 1 & 12.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “**Comments on Statement of Reasons for Allowance.**”

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akash Saxena whose telephone number is (571) 272-8351. The examiner can normally be reached on 9:30 - 6:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini S. Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Akash Saxena
Patent Examiner GAU 2128
(571) 272-8351
Wednesday, March 08, 2006



Fred Ferris
Patent Examiner
Simulation and Emulations, AU 2128